REMARKS

Prior to entry of this amendment, Claims 1-32 were pending in the application. By this amendment, no claims are added and no claims are cancelled. Hence, Claims 1-32 are currently pending in the application.

By this amendment, Claims 1, 9, 20, 22, 23, and 29-32 are amended. No new matter is introduced in the application by way of these claim amendments. No new search should be required, as the amendments merely clarify, and make consistent, terminology used in the specification and the claims sections.

SUMMARY OF THE REJECTIONS/OBJECTIONS

Claims 1-11 and 23-30 were rejected under 35 U.S.C. § 103(a) as allegedly anticipated by Ohno et al. ("*Ohno*"; U.S. Patent No. 6,578,088) in view of Tominaga et al. ("*Tominaga*"; U.S. Patent No. 6,880,000); and Claims 12-22, 31 and 32 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Ohno* in view of *Tominaga* in further view of Fijolek et al. ("*Fijolek*"; U.S. Patent No. 6,223,222).

THE REJECTIONS BASED ON THE PRIOR ART

Rejections under 35 U.S.C. § 103(a)

(A) Claims 1-11 and 23-30

Claims 1 and 9 are amended merely to clarify that the address utilization state is based on the actual use of the address space rather than on allocation of the address space. Specifically, Claims 1 and 9 are amended to recite that the address utilization state, in response to which a specified action may be performed, is based on the percentage of a certain address space allocated to a network service provider, in use by network access devices used by subscribers of the network service provider. In other words, these claims recite automated

methods for managing network addresses based on the actual usage of addresses. By contrast, *Tominaga* discusses a policing mechanism that establishes and uses a hierarchically structured group of servers to allocate addresses for discriminating respective hosts connected to a network, where upper order servers allocate addresses to lower order servers (col. 1, lines 7-25).

The claim amendments are to clarify the distinction between allocation of network addresses to a server (presumably for eventual assignment to devices on a portion of network associated with the server), such as in *Tominaga*, and actual use of network addresses by devices on the network. Network addresses can be allocated to a particular server, such as a DHCP server, for assignment to and use by respective network devices. However, allocation of blocks of network addresses to a server is completely different than use of the network addresses by devices on the network to which a respective address is assigned.

The foregoing discussion shows that *Tominaga* does not teach a network address utilization state that is based on use of addresses by network devices, the concept for which the Office Action relies on *Tominaga* in the rejection of Claims 1 and 9. Therefore, the collective teaching of *Ohno* and *Tominaga* does not substantiate an obviousness rejection of Claims 1 and 9 because one skilled in the art would not arrive at the respective embodiments recited in these claims due to the deficiencies in the teachings of the cited references. The citation of *Tominaga* on which the Office Action relies for a teaching of the address utilization state recited in Claims 1 and 9, in fact, discusses an address allocation rate (col. 22, lines 30-67). There simply is no teaching, in the collective teaching of the cited references, of using the percentage of actual use (not allocation) of a network address space to trigger an address management action on that address space.

Furthermore, the action described in *Ohno*, on which the rejection relies, is simply storing examination results about whether or not terminals using addresses actually exist in the

network system, to avoid distribution of duplicate addresses of addresses already used in the system (col. 2, lines 26-34). *Ohno* does not disclose or suggest performing an action on the addresses from the certain address space to which the address utilization state is associated, such as allocating, reconfiguring, and reclaiming such addresses.

For at least the foregoing reasons, a combination of *Ohno* and *Tominaga* does not make obvious the subject matter of Claims 1 and 9. Claims 2-8 depend from Claim 1 and Claims 10 and 11 depend from Claim 9. Therefore, Claims 2-8, 10 and 11 are patentable over *Ohno* and *Tominaga* for at least the same reasons as the claims from which they depend. Therefore, withdrawal of the rejection of Claims 1-11 under 35 U.S.C. § 103 is requested.

Furthermore, each of Claims 2-11 recites at least one additional feature that separately makes the respective claim patentable over the references of record.

For example, Claim 4 refers to a reconfiguring action (e.g., renumbering action 210, as described in greater detail in reference to FIGS. 4A and 4B). *Ohno* does not discuss any address reconfiguration operations. Merely describing use of a DHCP server to distribute addresses, without describing reconfiguring addresses on a particular network including more than one address block, is not a sufficient teaching to meet the standard for obviousness rejections. For this additional reason, Claim 4 is patentable over the references of record.

For another example, Claim 10 recites that the condition and action information are received from a broadband network access provider. The Office Action refers to a Wide Area Network (WAN 114 of FIG. 1) to substantiate the broadband network access provider of Claim 10, and contends that the presence of a WAN means there "must be broadband provider to mobile terminals." That is not true. First, the mobile terminal 115 of *Ohno* is shown connected to LAN 113a, not WAN 114. Second, the presence of a mobile terminal does not necessarily mean that the terminal is connected to a broadband network. A WAN *may* be a broadband

network, but is not necessarily a broadband network. It is generally agreed and accepted in the telecommunications art that Digital Subscriber Line (DSL) and cable are broadband services. However, a WAN does not necessarily refer to a DSL or cable network. *Ohno* does not disclose a system in which a broadband network access provider (for a non-limiting example, a cable network owner) specifies rules (i.e., conditions and associated actions) according to which network addresses are managed for a network service provider based on a percentage in use of a certain address space. For this additional reason, Claim 10 is patentable over the references of record.

Claim 23 recites a computer-readable medium carrying instructions which, when executed by one or more processors, cause the one or more processors to perform the steps that are recited in Claim 1. Therefore, Claim 23 is patentable over the references of record for at least the same reasons as Claim 1, as discussed above. Claims 24-28 depend from Claim 23. Therefore, Claims 24-28 are patentable over *Ohno* and *Tominaga* for at least the same reasons as the claim from which they depend.

Claims 29 and 30 are computer system and apparatus claims, respectively, with processors configured for, or means for, performing the steps that are recited in Claim 1. Therefore, Claims 29 and 30 are patentable over the references of record for at least the same reasons as Claim 1, as discussed above.

(B) Claims 12-22, 31 and 32

Claims 12-19 depend, directly or indirectly, from Claim 9. The Office Action relies on *Ohno* in combination with *Tominaga* and *Fijolek* to reject Claims 12-19. Because of their

dependence on Claim 9, Claims 12-19 are patentable over the references of record for at least the same reasons as Claim 9 from which they depend. As is shown above in reference to Claims 1 and 9, *Ohno* and *Tominaga* do not disclose that the address utilization state is based on a percentage, of a certain address space allocated to a network service provider, in use by network access devices used by subscribers of the service provider. Furthermore, *Fijolek* does not cure these deficiencies in the disclosure of *Ohno* and *Tominaga*. Hence, Claims 12-19 are not made obvious to one skilled in the art based on the collective teachings of the cited references of record and, therefore, the withdrawal of the rejection of Claims 12-19 under 35 U.S.C. § 103 is requested.

Furthermore, each of Claims 12-19 recites at least one additional feature that separately makes the respective claim patentable over the references of record. Because Applicants' remarks from the previous response, regarding Claims 13 and 15, were not responded to in the Office Action and because these remarks are still applicable even with the addition of the *Tominaga* reference, these remarks are repeated below. Reconsideration of these remarks and their corresponding claims is kindly requested.

For example, Claim 13 recites creating one or more sub-interfaces on a physical interface, where each sub-interface is associated with a particular network service provider and one or more sub-networks are assigned to one or more of the sub-interfaces. For example, a router interface is logically broken into multiple sub-interfaces associated with respective service providers so that respective sub-networks can be assigned to the sub-interfaces and, therefore, to the respective service providers. Thus, an address space is logically partitioned per service provider, by assigning to service providers particular sub-networks associated with portions of the address space via sub-interfaces on a routing means. The citations of *Fijolek*, or *Fijolek* in its entirety, do not disclose this interrelationship between sub-networks, sub-

interfaces and network service providers, and the application of this interrelationship via the physical interface of a routing means. Rather the citations of *Fijolek* on which the rejection of Claim 13 relies describe a DHCP message structure for discovering network host interfaces. This teaches nothing of the application of the interrelationship referred to above via the routing means interface. For this additional reason, Claim 13 is patentable over the cited references of record.

For another example, Claim 15 recites proportionally associating a range of network addresses to routing means based on a previous distribution of addresses for the routing means. The citations of *Fijolek* on which the rejection of Claim 15 relies generally refers to a mechanism for dynamically and temporarily assigning a network address to a client, which is one of the well-known and primary purposes of a DHCP server. This teaches nothing of proportional assignment of a range of network addresses to a routing means based on a previous distribution of addresses for the same routing means. For this additional reason, Claim 15 is patentable over the cited references of record.

Claims 20 and 22 recite some similar limitations as Claims 1 and 9. As is shown above in reference to Claims 1 and 9, *Ohno* and *Tominaga* do not teach the features recited in Claims 1 and 9. Furthermore, *Fijolek* does not cure these deficiencies in the disclosure of *Ohno* and *Tominaga*, in the context of the rejection of Claims 20 and 22. Hence, these claims are not made obvious to one skilled in the art based on the collective teachings of the cited references of record. Claim 21 depends from Claim 20 and, therefore, is patentable over the cited references for at least the same reasons as the claim from which it depends.

Claims 31 and 32 are computer system and apparatus claims, respectively, which in general claim similar subject matter as recited in Claim 22. Thus, Claims 31 and 32 are patentable over the references of record for at least the same reasons as Claim 22.

CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims (1-32) are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Please charge any shortages or credit any overages to Deposit Account No. 50-1302.

Respectfully submitted,
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on 10/26/05 by Darci Sakamoto